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# CACTUS AND SUCCULENT JOURNAL

**Of the Cactus And Succulent Society Of America**

VOL. V AUGUST, 1933 NO. 2

Photo by R. S. Woods, Azusa, Calif.

A Desert Silhouette

*Phainopepla nitens lepida* is one of the most characteristic birds of the southwestern deserts and arid mesas. It is shown here perched on a skeletonized branch of *Opuntia parryi*.

# CACTUS AND SUCCULENT JOURNAL

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*Trichocereus schickendantzii* in Max Cohn's Garden, Los Gatos, California.

### FRICK NOTES

So sensitive to darkness are the flowers of *Neomammillaria lasiacantha* that they often start to close when a large cloud passes between the sun and the flowering plant. The flowers of this species are very small and usually bloom near the middle of March. The blossoms open about 10 a. m. and close in the early afternoon.

"I have been informed that *Euphorbia splendens* furnished the crown of thorns that was placed upon the Saviour before His crucifixion. Is this correct?" inquires Member Lillian Spence, of Jackson, Miss. No, *E. splendens* is native to Madagascar, and it would have been impossible for the plant to have reached Palestine in that early age. The common name for this species, however, is Crown of Thorns.

# Cacti of the Rio Grande Valley

*By* ERNEST BRAUNTON

The last month of 1932 and the first two months of the current year I spent on a camping trip in Texas and New Mexico, making a journey down the Rio Grande River, on the American side, of more than 1,000 miles, to the Gulf of Mexico. My longest stay was at El Paso, where I explored the country for more than 100 miles in every direction.

North of El Paso I did not collect any cacti in the valley, but further east, near the Carlsbad Caverns, I found *Escobaria tuberculosa, Echinocereus stramineus, Epithelantha micromeris,* what I believe was *Escobaria Sneedii,* and *Agave Parryi.* The latter covered acres, one of the handsomest of agaves. Large clusters of *Echinocereus stramineus* covered the hillsides by thousands, surpassing in numbers per acre any cactus I have seen except opuntias; in many places two clusters of 100 or more heads competing for the same spot. Some of the clusters are three feet across and of equal height, the largest I have seen of the genus.

El Paso is a cactus collector's paradise. I was told by one dealer who lives there that 74 species grew within a radius of 100 miles and this is probably true. I collected 20 or more species there, two yuccas, two agaves and *Dasylirion Wheeleri,* the latter the most conspicuous and most beautiful desert cover I have ever seen. In some places there are millions of plants to the acre, of a most pleasing green, with trunks to four feet high and flowering stems to 14 or more feet. The yuccas are *macrocarpa,* ten feet high, and *elata,* to 20 feet. The agaves are *Parryi* and *lecheguilla* and I also found *Pottsi.* The most common weed in and about El Paso is the lecheguilla, found in numbers beyond computation within the city limits. The most common cactus is *Echinocactus horizonthalonius* and in clearing city lots for building I have seen at least 500 taken to a ravine and dumped. Beginning at the city limits, *Echinocerei chloranthus* and *dasyacanthus* are very common, as they are in the canyons, where they are freely mixed with *Echinomastus intertextus.*

All the foregoing grow in sandy soil of good fertility, sometimes mixed with gravel. With them, but usually on the lower plains, are *Ferocactus uncinatus* and *Coryphanta macromeris,* the latter often in clusters of ten to twenty heads, deeply seated in the soil. Down on the rich sandy plains are found *Echinocerei conoideus, Fendleri* and *triglochidiatus.* On the hillsides is *E. stramineus,* usually in large clusters, rarely found in single heads. On the perpendicular face of stratified limestone, without soil of any kind or amount in evidence, is *Escobaria tuberculosa,* usually in beautiful clusters. *Epithelantha* grows in the same foodless strata but not around El Paso. Occasionally a *Peniocereus Greggii* is found, but it is not common. One very beautiful white-spined platopuntia, *O. polyacantha,* covers large stretches of sand so that but little of the sand may be seen among the plants. I collected several other species of opuntias there, but have not to date determined them. *Neomammillaria Grahami* is found on exposed hillsides and also in the shade of the creosote bush (Larrea).

Going south, at about 200 miles distant I found other types of *Echinomastus intertextus* and *E. triglochidiatus,* also *E. viridiflorus* and a full-grown armadillo, the latter a dull-witted animal, easy to capture, non-combative and scarcely seeking to escape when liberated. Here too, were seen several bands of the very beautiful prong-horned antelope; the only species in the United States. The next collection was the peerless *E. Reichenbachii,* white as snow. Then *Coryphantae radiosa* and *vivipara.* Next came *E. enneacanthus* and this increased in numbers and size of clusters until it became a nuisance to owners of cattle pastures, being second in numbers only to a platopuntia of the *macrocentra* type. It was found freely down to near the gulf coast. Six hundred miles south of El Paso commenced *Hamatocactus setispinus,* to become common clear to the gulf.

When we reached Eagle Pass we saw a garden containing large numbers of *Astrophytum myriostigma* and little else, the owner finding a better sale for this species than for all others combined. We were told that nowhere were they present in large numbers. Just below this pass we found, in the chaparral, *Lophophora Williamsii, Dolicothele* (two species), *Ancistrocactus Scheeri,* the latter to follow us to the gulf. Later *A. brevihamatus* was found, but was rare. Here also was *Ferocactus hamatacanthus.*

Twenty miles from Laredo we camped in a sandy pasture where under the low shrubs, in the shade, were many *Neomammillaria Heyderi,* of large size and frequently in large clusters, also an abundance of *Wilcoxia poselgeri,* often

three feet or more in length of stem, sprawling through the bushes. Only when it is shorter and strictly upright is the plant attractive. Next find was *Homocephalus Texensis,* always in damp black adobe soil until at the gulf coast it was in a dark sand. With it on the southern tip of the United States were *Echinocereus Blancki* and *Neomammillaria hemispherica,* both in the shade of bushes and in the zone of heavy fogs.

But the greatest puzzle of all was *Acanthocereus pentagonus* (usually triangular and not five-angled as the specific name implies). It grows in wet black adobe, in the zone of heav-

LEFT TO RIGHT: *Ancistrocactus brevihamatus, Echinomastus intertextus, Ancistrocactus Scheeri, Echinocereus stramineus, Echinocereus enneacanthus, Acanthocereus pentagonus, Escobaria tuberculosa, Echinocereus triglochidiatus, Ferocactus uncinatus.*

iest fogs, in complete shade. No wonder that it blooms during the night; the sun never shines upon it. In this same chaparral thicket I found a plant five inches high, three inches in diameter, covered with weakly limp tubercles an inch long, totally devoid of spines. Only when I found another, in less shade, with a few spines near the top, did I know the plant was *Neomammillaria hemispherica* (or a similar species) growing in such dense shade that it had lost its spines.

While in Brownsville I visited the collection of Mr. Runyon, the finest lot of potted cacti I ever saw. In his garden, climbing over trees and fences, was *Selenicereus spinulosus,* which also grows with *Acanthocereus,* though I did not find it.

After collecting cacti in their native haunts over a stretch of more than 40 years, first for profit, latterly for pleasure, I am led to believe they are the most perverse of all plants. In the strictly arid sections, such as portions of California, Arizona, New Mexico and northern Texas, where the rainfall is least and the need of water and its conservation greatest, the plants sit on top of the soil, only their roots burrowing beneath the surface, often superficially. Farther south in Texas, where the rainfall is annually twice that of Los Angeles, the cacti are deeply seated in the soil, usually three-fourths or more of the plant being below the surface. One would expect to see these two conditions reversed. It is also true that the heaviest-spined plants are all in the most arid sections, the bodies of many species not being seen through the spines, *Echinocerei chloranthus, dasyacanthus* and *stramineus* being examples. In wet sections spines are few and far between. The bright-colored spines are also all in the arid countries. The arid species are also the hardest to root, and the slowest. Those from subtropical Texas rooted in two weeks. Some of the dry land species are still without roots three months after planting. Texas contains many interesting succulents besides cacti and a few of these species I collected, especially a small spotted-leaved Manfredia. Many new species of cacti doubtless await the exploring collector.

# What Do You Call This?

*By* ROBERT W. POINDEXTER

Did you ever proudly tell a friend "this is Blankopsis vaccuosis" only to have him reply, "Oh, no, that has been changed to 'Whatnowea whoosei'; I just learned this from Jones, and he knows his stuff"? Did you ever see four or five names on one label so you could take your choice? Have you seen a good plant in several collections with no name or a question mark on it? Perhaps none of these things ever happened to you, but if any of them did, you felt exasperated and baffled, if you are a normal collector.

A good collector wants correct names for more serious reasons than merely to startle and amaze the unitiated, and so prove his mental superiority. He wants to be able to list his collection; he wants to group it correctly; he wants to be able to order seeds and plants by name without finding out, later on, that he has merely duplicated a plant, even though he has added a name to his collection. And he feels he has a right to talk about a particular plant by name with the assurance that his hearers will know just what plant he is talking about.

While some of us do feel baffled by the present state of nomenclatural uncertainty, we buoy ourselves with the hope that it is a temporary condition which will soon be cleared up by the many hard working botanists who are active in the cactus and succulent fields; their activity, without doubt, stimulated by popular interest. But before we yield to this pleasing prospect, let us take a look at what the botanist is really up against. The rules of the game state clearly that the discoverer of a new plant has the right to describe and name it, if he is a botanist, or if he is not, then he has the right to take it to a botanist for description and naming. In the latter case the plant is frequently named for the discoverer. If the discoverer is a botanist who wants the plant to bear his own name, he should take it to another botanist for description, as it is not ethical to describe a plant named for oneself. This is clear and simple so far, but the plot thickens.

The description may be published in any botanical journal or text book anywhere in the world and in any language. Latin preferred though not required. It may also be published in a journal or report not exclusively devoted to botany. Names have even been founded on descriptions published in nursery catalogs. Suppose, then, a pioneer botanist years ago discovered a new cactus which was strikingly differ-

ent from anything known in the cactus line up to that time. He writes a description differentiating it from his known cacti. Years later, with improved transportation facilities and increased interest in cacti, a dozen may be discovered which form a new group or may be made into a new genus. Had the original pioneer had the whole group to work with, he might easily have made his stand out from the related ones whose existence he did not suspect, but he only succeeded in making it stand out from other groups. Thus it may easily become a matter of guesswork for later workers to decide which is the original plant covered by the pioneer's description, which now fits several of the new group with equal accuracy.

Another cause for confusion is for a later botanist to rediscover and redescribe and rename a plant already named by an earlier man, for the reason that he did not read the first description, which may have been published in an obscure journal, long since discontinued. A third man, however, runs across the first description and even though the second man has introduced the plant into cultivation under the name he gave it; even though it has been cultivated under the second name for years, it must now go back to the name originally given and virtually lost because the first discoverer did not introduce living plants. But if the first description was a little vague and does not exactly match the second, then it is a delicate matter to decide whether the two plants which were described represent one species or two distinct ones, of which the first has never been found again or is even extinct. In the latter case conscientious authorities may differ with no chance of ever clearing the matter up. In some of the species listed in Britton and Rose you may find a dozen synonyms for one plant, most of the names having originated through inadequate search of the literature or through inadequate prior descriptions. Don't judge the botanist harshly for this: a complete search of all the literature in the world is practically impossible. And as for writing an adequate description, that is not as easy as it sounds. It is quite easy to write a description of a plant you have before you, but it is a different matter to visualize someone's else description of a plant you have never seen. All you can do is to evoke a ghost, and even the ghost will be distorted to some extent by the fact that the describer's way of looking at things is different from yours. When a friend describes to you a person you are expecting to meet, you involuntarily form a mental picture of the stranger. But when you do meet him, he usually differs widely from your mental picture, even though you may check back the details of the description and find each item essentially correct. For checking identities, a photograph, or a set of photographs is worth more than pages of description. Unfortunately photography was not available to the early botanists.

What has been said thus far refers to the difficulty of ascertaining which of several specific names applies to a particular plant. Now we meet the taxonomist. Taxonomy is one division of botanical activity. It is the "science" of classification. While the plant explorer is afield, sending in new material, the taxonomist is at work in herberia and libraries, very laudably yielding to that deep instinct of the human race which urges us to bring system and order out of chaos. What has he to guide him in his grouping of related species into genera and of related genera into families? Essentially one thing. His personal judgment as to what constitutes similarity and what constitutes dissimilarity. Modified, of course, by consideration of the recorded personal judgments of those who have worked before him. The profess is entirely similar to that by which a judge on the bench arrives at his decision. Just as the judge's decision may be reversed by a higher court, so the taxonomist's decision may be reversed by another taxonomist, but while we recognize certain courts as final, the taxonomists have no final court, and the process of revision may go on forever. The taxonomist has the right to consolidate two or more genera into one, to split an established genus into as many new genera as he may consider justified, or to transfer one or more species from one genus to another. We are not speaking of new discoveries, now, but of plants which have been published and whose names are in use. Each of the above changes may give a whole group of plants new names. Examples: the genera *Disticha, Ripodendron* and *Aloe* are consolidated into *Aloe;* the genus *Mesembryanthemum* has recently been split into a hundred or so new genera, in spite of inter-relating forms all along the line; the deservedly popular *weinbergii* has been shifted so often between *Echeveria, Graptopetalum, Byrnesia* and possibly *Pachyphytum* that the plant might well be expected to wither up and die. These are not isolated instances of name changes produced by revisions of classification; hundreds might be quoted. Nor is stability being reached, on the contrary the names are changing faster and faster. Strangely enough, the alteration of a plant's name does not have

the slightest effect on its growth nor even on its appearance.

How different are the conditions in that division of botany known as plant physiology, which is an *experimental* science. Suppose an ancient botanist states the law—"plants derive their nourishment from the soil; this is a matter of direct observation which anyone can check by noting that that is where they grow." A later plant physiologist states—"plants derive 90% to 99% of their nourishment from air and water." Here is a matter considerably more fundamental than the position of weinbergii, and apparently we are in for an extended discussion. On the contrary; here is a matter which can be settled positively by experiment. Try to grow a plant in an airtight container under conditions otherwise ideal as to moisture, light and soil. It can't be done. Furthermore, a plant *can* be grown in soil free from carbon or hydrogen compounds, except for water, but with air. Yet when this plant is chemically analyzed, it is found to be composed of carbon, hydrogen and oxygen to an extent of over 95% of its weight. We are forced to conclude that these elements came from water and air, even though there is only a trace of carbon (as carbon dioxide) in air, because water and air were the only possibly sources of these elements within reach of the plant.

There is one experimental method open to the taxonomist, though it is not used as freely as it might well be. Nature is unaware of man's classifications, but very much aware of certain natural groups which are so closely related tha: interbreeding may occur. Several degrees of relationship may be experimentally demonstrated. If the relationship is close enough, crosses result in fertile offspring, if more distant, sterility shows up in a series of distinct steps, showing steps of diminishing relationship. In the science of ethnology, the genus *homo* was formerly divided into many species. Not only were there the well known races of white, yellow, red and black men, but a dozen or more species of African negroes were set up. Later criticism has resulted in the consolidation of all the human beings in the world into a single species: *homo sapiens*. This is due to the fact that all human beings can intermarry. An adoption of this principle in botany would make for permanency in classification because the ability of a particular plant to cross with another particular plant is a fixed quality, inherent in each. And the personal opinion system of classification is distressing to the geneticist who is perhaps influenced in favor of zoological material by the more natural classifications which he finds on that side of the biological fence.

A collector is surely entitled to definite and permanent names for the objects in his collection. It is hardly a collection without them. Nor can he communicate intelligently with fellow collectors. One may get together a conglomeration of beautiful or curious pebbles, but a named collection of minerals is more interesting by far. We who are collectors of cacti and succulents have striven nobly to meet the situation by attempting to become trained botanists over night, but the situation cannot be met that way, because the more botanists there are in the field, the more confusion of names there is likely to be.

What to do? Might it not be worth while, as collectors, to set up a perfectly definite list of plants for the sole purpose of accurate and permanent labeling and of clearness and accuracy in communicating with others?

As a matter of fact, many of our members have already started to do this for themselves. On each plant they put a permanent number, using a permanent metal tag. The number of each plant is recorded in a card index, or other form of file, with a description of the plant and data as to where obtained and when. Also the name the plant goes under, if known, to which are added future synonyms, as they appear. The value of this file is very greatly enhanced by the inclusion of photographs. A similar system is used by plant explorers and by the bureau of plant introduction, who number the plants as they are discovered and frequently introduce them into the trade under the collection numbers.

If we, as a society can compile an index and file for general use, it will be of great service to our members. Individual indices lose most of their value, because being kept in personal codes they cannot be used for universal labeling or in any form of communication.

A possible system for a general index would be as follows: a group of those most interested would form a permanent board in charge of the filing. They would welcome photographs of typical specimens, accompanied by descriptions, from any collector, dealer or individual. A number system might be used or a system of coined code words. In either case certain divisions would be reserved beforehand for certain families and genera. Assume the number system. Each photograph and description received would be referred to a member of the board specializing in that group of plants. He would search the file to make sure it did not duplicate

or too closely approximate a description already filed. If distinct, it would be given a code number and filed thereunder, with the name of the person sending it in, who would be notified of this code number and then be entitled to officially label his plant with it. For example, he might receive the number A.C.S. 244. A.C.S. standing for American Cactus and Succulent, and appearing as a prefix to all file numbers, and the number 244 indicating that his plant is one particular and definite *Opuntia,* since the numbers from 200 to 700 have been reserved for Opuntias. He would also receive the current name or names of that Opuntia and could add future names to its belt or not, as he chose. Even if taken clear out of Opuntia, which might easily happen, the plant would still be A.C.S. 244 for him and for anyone else who secured a cutting of his plant or had an identical plant already. The identification would be spread by comparison with the registered plant and by recomparison of plants from one collector to another with the opportunity to check back to the registered plant or to the filed photograph and description, should doubt at any time arise.

As filing progressed, several interesting things can be predicted. Collectors would soon learn to recognize plants by their code numbers which would be easier to write on labels than botanical names. Collections would begin to show up completely labeled. No one would need to apologize or develop an inferiority complex because he had left an out-of-date label on a plant through lack of time to change it or through ignorance of a later name. In mentioning a plant in conversation, one would no longer need to give a list of synonyms to his hearer in the hope that the latter would be able to pick out a familiar one and understand just what plant the speaker was referring to. New introductions could be permanently labeled at once instead of writing on the label the name of the introducer in the fond hope that the plant would some day receive a name from a botanist and that that name would in some way reach the collector. The file would be invaluable as a sort of illustrated super catalog of plants to those who wished to round out some particular department of their collections. It would be of value to botanists, who would find collected in one place the replicas of plants scattered through many gardens. The undertaking would add to the prestige of the Society, and is strictly in line with its aim of promoting popular and scientific interest. It would add to the prestige of the collectors who first sent in photographs, because they would automatically be recorded as the possessors of registered type plants. The file would serve as a valuable source of material and of cuts for articles for publication in this JOURNAL. Notes on the progress the file was making would appear in the JOURNAL from time to time, together with lists of the code numbers which had been assigned and descriptions of rare or outstanding plants recently filed. Collections would be enriched by the inclusion of horticulturally worthwhile plants at present excluded by many collectors (and quite properly) simply because they are nameless and hence regarded as waifs and strays.

The custodians of the file would have considerable detail to look after, but it would be divided among a number of specialists, and would be work which particularly interested them. Who does not like to check up on pictures of things he is interested in? And who does not like to help in the creation of an orderly system? It is probable that the sum of the work of independent cataloging which is now going on would be more than sufficient to do the job if the effort were coordinated instead of being individual and unrecognized.

The plan is in no sense an attempt to belittle the importance of botanical classification. It is essentially a pragmatic device to avoid wear and tear on the collector who conscientiously tries to label his collection. He does his best but is not satisfied. He would really prefer spending what time he has adding to his collection than trying to be a botanist, but he does want a complete and permanent set of official labels. A specimen on exhibition at a flower show this spring was labeled *"Aloe Fair Oaks".* Yes, it was the Pasadena show. (But not the cactus show.)

Brief comments on the practicability of the filing plan will be welcome. If sufficient interest is apparent, the writer will endeavor to secure it a fair trial. Either it will work or it won't work and the only way to find out is to try it.

R. W. POINDEXTER,
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Long Beach, Calif.

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**The following 8 pages are reprinted from "The Cactaceae" by N. L. Britton and J. N. Rose.**

# Notes on Britton and Rose

*Edited by* E. M. BAXTER

The following two species are copied from the appendix to Volume IV of "The Cactaceae". The first should follow *Opuntia austrina* on Page 130; the second follows *Opuntia soehrensii* on Page 135.

**121a. Opuntia eburnispina** Small, sp. nov.

Prostrate, widely branched and forming mats on dune sands, with tuberous roots; joints oval or suborbicular, varying to broadest above middle, thickish, 6 to 13 cm. long, pale green, somewhat shining, especially when young; leaves ovoid-subulate, 4 to 5 mm. long, pale green, recurved-spreading; spines relatively stout, 2 to 4 at an areole or sometimes solitary, 1 to 2 cm. long, ivory-white with yellowish tips when young, becoming dark gray, not spirally twisted, greenish when wet; flowers few; ovary obconic; sepals triangular, green, 5 to 7 mm. long; corolla clear yellow, 4 to 5 cm. wide; petals few, narrowly cuneate, often minutely pointed; berries obovoid, 2 cm. long or less.

Coastal sands, Cape Romano, Florida. Type specimens in the herbarium of the New York Botanical Garden; collected in May 1922, by J. K. Small.

Figure 237 is from a photograph by Dr. Small of the type plant.

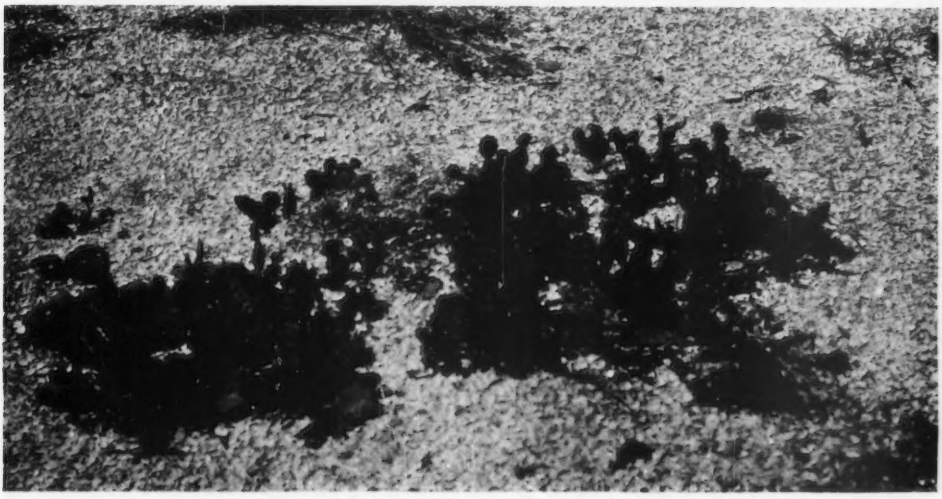

FIG. 237.—Opuntia eburnispina.

**129a. Opuntia macbridei** sp. nov.

A low bush, 6 dm. high, forming broad impenetrable thickets on gravelly river flats; joints obovate, 6 to 8 cm. broad, 8 to 15 cm. long, glabrous, at first light green, in age dark green; leaves minute, 1 to 2 mm. long, caducous; areoles on young joints hemispheric, brown-felted and with brown glochids, on old joints 2 to 3 cm. apart; spines 2 to 4, in age gray to horn-colored, with yellowish tips, very unequal, the longest up to 5 cm. long, stout-subulate; flowers very small, orange to orange-red; petals only 4 to 5 mm. long; ovary tuberculate, bearing many brown-felted tubercles but without spines, deeply umbilicate; fruit deeply umbilicate, red to purple.

Collected by Macbride and Featherstone at Huanuco, Peru, altitude 2,300 meters, August 28 to September 3, 1922 (No. 2365, type), and April 8, 1923 (No. 3250).

Mr. Macbride states that the seeds are brown. All the fruits we have seen were sterile; these sterile fruits on falling to the ground take root and form new plants.

FIG. 238.—Opuntia macbridei.

This interesting plant, which proves to be undescribed, we have named for Mr. J. Francis Macbride, who led the Botanical Expedition of 1922 to South America, sent out by the Field Museum of Natural History, under the Captain Marshall Field fund.

Figure 238 is from a photograph showing the habit of this plant.

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FRICK NOTES

Historians inform us that in early California days, festivities were occasioned around the old Spanish haciendas when the nocturnal flowers of the *Hylocereanae* opened.

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Did you know that today one of the most interesting industries in the world has ceased to exist, and the depression had no part in its passing? It is the raising of the Cochineal insect which was used in the manufacture of dyes. The greatest cochineal raising country in the world was in the state of Oaxaca (pronounced Wah-hah-kah) in Mexico where *Opuntia coccinellifera* (the cochineal cactus) grows so well. German coal-tar dyes have been so well developed, that the cochineal is passe as a source of coloring material. It took seventy thousand insects to make one pound of cochineal color and took one laborer one whole day to pick enough of these bugs from the cactus to make two ounces of dye.

---

What would your reactions be if you were to walk into your hot-house and find dozens of trays of rare seedling cacti together with pots of your rare specimen plants all dumped bottom end up in the isles. Yes you said it—and that is just what R. S. McGaughey of Long Beach said when he entered his hot-house after the earthquake.

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Spines are not entirely confined to Cactus in the desert. Naturalists inform us there are desert mice that have spines like a porcupine's growing among their fur.

Do you recognize the name Ernest L. Mueller? If you don't and you have a cactus collection anywhere between Laredo, Texas, and Seattle, Washington, the chances are fifty to one that you have met him. He is a traveling salesman that visits every collector and dealer in the territory at least once a year. He calls on you in a right-hand drive Dodge roadster, and hails from Oakland, California. He is known to the society officers as one of the best boosters we have. He offers to drive 50 miles out of his way any day including Sunday to get a new member. Now you remember Ernest, don't you?

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Mr. Robert W. Poindexter
Dear Sir:

My subscription to the next volume (Vol. V) of the "Cactus and Succulent Journal of America" is now due and I enclose cheque for the same herewith. 3 American dollars.

I always look forward to the coming of the Journal as the matter is extremely interesting and instructive and above all the illustrations are plentiful and adequate. The letterpress, if illustrated, is much better understood. A very fine example of this combination was the continued article on the **Stapelia** group. It has been a great help to my understanding the various sections into which it has been divided.

With all my best wishes for the success of both the Society and the Journal,

Yours very truly,
HY J. TURNER, England.

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Photo by Eric Walther

*Greenovia dodrentalis,* x 0.4 flowering at Golden Gate Park, San Francisco

# Illustrations of Crassulaceae

*By* ERIC WALTHER

***Greenovia dodrentalis* (Willd.) Webb.**

It is a far cry indeed from the Crassula's of Africa, or *Pachyphytum* and *Sedum* of Mexico, to the home of the succulent pictured herewith. *Greenovia* as a genus is endemic to the Canary Islands, the present species occurring on Teneriffe. Briefly characterized, the plants may be likened to *Sempervivum,* agreeing with the Subfamily *Sempervivoideae* in the multiplicity of their floral parts, but differing from all other genera in the transverse dehiscence, or opening, of the ripe follicles, or fruits, the peculiar placentation or arrangement of the ovules, the immersion of the carpels halfway-up into the hypogynous disk, and the absence of the honey-scales.

In contradistinction to *G. aurea,* this species freely produces off-sets, and does not die after flowering just once, a feature making it more desirable for garden-use. Its golden-yellow flowers are sufficiently abundant and showy to make it deserving of a place in all collections; and their intricate structure serves to make them interesting as well. The subject of our photo flowered in Golden Gate Park in the spring of 1933, having been grown from seed received of Dr. Otto Burchard, Orotavo, Teneriffe.

The specific name, "dodrentalis," has reference to the height of the inflorescence, meaning "a span," which is about 9 inches. In cultivation this often bears the name *G. gracilis,* but according to R. L. Praeger's excellent monograph the name here used must take precedence.

## FLOWER SHOW

Our Society has been invited to take charge of the Cactus and Succulent Division of the annual flower show of the Long Beach Dahlia and Floral Society, and to appoint judges. Our executive board has accepted the invitation. This is their fifth annual show, and will be on a larger scale than ever before, being staged on two floors of the handsome new municipal auditorium. All previous shows have been highly successful and an attendance of at least 9000 is anticipated, based on past records.

Cactus and succulent enthusiasts are urged to enter exhibits as individuals or to lend specimens to be added to a general A. C. S. S. display. There is no entry fee, but individual exhibitors must join the Long Beach Society, unless they are members already. Dues $1.00 per year, which includes admission to the show. Get in touch with Mr. Gilbert W. Arnold, Show Manager, 4131 East Sixth Street, Long Beach, for individual entries, or R. W. Poindexter, 4160 Country Club Drive, Long Beach, for loans to the A. C. S. S. display. Arrangements will be made to call for and return the latter, if possible. The date is September 8, 9, and probably 10.

Mr. Hagenberger, Soldena Gardens, Howard Gates, Johnson Water Gardens, and a number of others, including many local amateurs, have already arranged for space, and a first class fall cactus show is in sight.

Photo by R. S. Woods, Azusa, Calif.

*Opuntia santa-rita.* The lower flower apparently lacks an ovary, as the bud formed at tip of a newly developed joint.

## OPUNTIA SANTA-RITA

Doubtless many people have been disappointed when specimens of *Opuntia santa-rita* planted in their cactus gardens have failed to retain the rich purple coloring which makes this species so attractive a feature in the southern Arizona landscape.

A cutting which I collected some years ago was planted in light, gravelly soil in full sun, and was never sprinkled, but occasionally given a little water around the base. It grew thriftly, but failed to show the slightest tinge of purple. In order to determine whether the infrequent waterings it received could have any bearing on the color, a joint from this plant was set in a similar location, but water was entirely withheld. After a year or two the south side of the new plant had assumed a fine dark purple color, the north side remaining partially green.

The rains of the following winter did not perceptibly affect the color, but showers in May and June resulted in the loss of most of the purple tint, especially on that portion of the plant upon which new growth was forming. The color was gradually regained after the ground had dried, until, in the latter part of July, it seemed to have been completely restored to the mature joints, though the new growth still remained green.

It is evident, therefore, that the purple coloration is dependent upon two factors: first and most important, the entire withholding of water during the growing season; and second, exposure to full sunlight. It will be observed that the climate of Arizona is favorable in these respects, the driest weather occurring during the growing season of the cactus.

R. S. WOODS.

### The Secretary's Spinal Column

The Cactus Club of San Fernando meets the second and fourth Thursdays of the month at the homes of the members or at other places of interest. They have organized a class to study the Exerophites under the able direction of our President Emeritus, Dr. A. D. Houghton. If you happen to be out that way get in touch with Fred Benedict and he will tell you about the meetings and show you a fine collection of plants.

The Cactus and Succulent Club of Riverside met Thursday, August 3, at the home of Mr. and Mrs. Fairchild. Mr. R. N. Terrill explained the purpose of of cactus spines, although I solemnly believe that they are to stick the unbelievers. Prof. Robert W. Hodgson gave some observations on the importance of cacti in the Mediterranean Basin. On the Notice of Meeting Card was the legend: "Come Early—Bring a Friend."

The Cactus and Succulent Society of Great Britain, which publishes a fine quarterly Journal, has over three hundred members and is growing fast. The English are very enthusiastic about Xerophites and have a Journal that is packed full of interesting matter.

Mr. Armstrong has long been bemoaning the fact that he was the only crank in Vancouver, B. C., but now he has Mr. Coe to help him argue the points. Heaven preserve the peace in Vancouver now!

The branches of The Cactus Club of California have the following meeting dates: Glassell Park Cactus Club, first Wednesday of month, 2:30 p. m., Mrs. A. W. Tully, AL 3262 for information; Bay District Cactus Club, first Monday, 7:30 p. m., at Venice Chamber of Commerce; Los Angeles Cactus Club, second Wednesday, 2 p. m., Mrs. B. F. Dengler for information; Long Beach Cactus Club, second Sunday, Mr. John Klenke, 1042 Lecouvreur Ave., Wilmington, for information.

Let's hear what the Cactus Clubs in other states are doing. If I can get your notices about the first of each month I can include it in the JOURNAL.

TED HUTCHINSON, Azusa, Calif.

### FRICK NOTES

If you own a green house, you owe it to your plants to keep it orderly and clean at all times. A little daily attention to small matters is all that is required to avoid the look of neglect which is seen in so many hot-houses. Have the shelves washed from time to time, and the corners and ledges cleaned, otherwise they become receptacles for insects and their eggs which when hatched, sally forth to feed on your prized cacti and succulents. If you do this and keep your floor well swept and washed, your plants are fairly safe from most insects.

"Is the Ocotillo a cactus?" inquires a member in Georgia. So well fixed is *Fouquieria splendens* in the popular mind as a Cactus because of its spines and desert habitation. Few people know that the ocotillo is unrelated to Cacti.

### Frick Notes

Stand back, folks; one at a time, please. A member in New York State makes the following offer: "I have one of the Blanc Catalogues issued in 1891 in good condition. Also have one copy of F. Weinberg's catalogue. I would like to trade these for grafted cristates of Cactus. Anybody interested and having the grafts, please communicate with W. C. Trageser, 46 Stonelea Place, New Rochelle, New York." We know of no other available.

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How do you pronounce Phyllocactus? A writer in a Des Moines, Iowa, garden magazine informs his readers it's "Fyl-loh-kak-tus". If you will listen carefully you will notice most Cactus hobbyists pronounce it likewise. To be correct you should say Fill-oh-kak-tus, using the "i" as you do in hill.

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Two years ago a noted entomologist informed the fretful world that there was no use kidding ourselves about it at all; at the rate of destruction then going on, the Cactus and Joshua trees of our deserts would be gone by the fall of 1933. His contention was that a borer was at work creating this havoc. A visit to the desert today will show how incorrect his opinion was, and the state of California did not make an appropriation to wipe out the borer, either.

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The first conviction in Pima County, Arizona, under the new cactus conservation law, occurred last month in the Ajo justice court. A plant dealer of Phoenix was convicted and given his choice of $150.00 or 150 days by Justice John S. Wood. According to the arresting officer, this person uprooted a large quantity of cactus near Ajo and in addition cut more than 1000 branches from cactus of that region. His excuse was that he was doing this for scientific purposes and that the plants were to be sent to England. Under the new Arizona conservation law, cactus must not be cut, removed or defaced, and only handled at all with a proper permit from the state horticultural commission. A good alibi isn't sufficient. The fine is high and the jails lousy.

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The dried-out flowering stems from *Yucca Whippelei* are what actors use when you see movie comedians slam each other over the head in slap-stick comedies. These stems are as light as a paper tube and very ineffective as a weapon or club.

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The responsibility of caring for a large collection of cactus has befallen 10-year-old Billy Ligon of San Antonio, Texas. His father, W. H. Ligon, a charter member of this Society, is confined in the government hospital at Legion, Texas, and Billy, who seems to understand the care the plants need, has been receiving pictorial publicity in the San Antonio newspapers.

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Something new and of real merit in the issuing of a catalogue is demonstrated in the one just off the press and ready for free distribution by Howard E. Gates of Anaheim, Calif. After each listing there appears either a letter "S" signifying seedling, or "R.C." meaning rooted cutting.

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Due to there being no cactus show sponsored by the northern branch of the Society at San Francisco this year, the Dahlia Society of San Francisco has set aside a section of its annual show, held at the Palace Hotel August 18 and 19, for the carefully selected showing of Cactus and Succulents.

A columnist in a monthly magazine published at Calcium, N. Y., notes that "Woodpeckers in the desert have nest holes in the Giant Cactus." Yes they do, providing there are ample holes for the Elf Owl population. Until then the woodpecker is only a hole digger.

An Arizona society member visiting Los Angeles informs us that the invasion of hoardes of grasshoppers in that state this year was the worst infestation known in history to the entomologists of Arizona. So great was the pest at Dome, that those blown against or flown onto the Giant Cactus were impaled on the spines. He counted 60 grasshoppers on one plant within a space the size of a hat; some of the spines penetrating two and three hoppers. Woodpeckers need only work five days a week at Dome!

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### A CORRECTION

To the Editor,
Journal of the Cactus and Succulent Society.

An article appearing in the last number of the JOURNAL under the title "Euphorbia Lemaireana Boiss," and the signature of Mr. Frick, contains the following statement: "Dr. Leon Croizat of New York states that the name *E. Lemaireana* is not valid, but until the correct name for the plant is learned it seems only reasonable that E. *Lemaireana* should stand."

I do not recall having discussed with Mr. Frick that species in the course of some correspondence I have had with him some time ago. Since, however, that statement tends to associate the result of my work with conclusions that are not mine, I will feel greatly obliged to you for conveying to the readers of the JOURNAL the following information:

E. *Lemaireana* Boiss. was described in 1857 by C. Lemaire (Ill. Hort., Misc., 71) under the name *E. crispata*, Lemaire specifically saying: "This plant which is erroneously labeled in the greenhouses of the Museum of Paris *E. fimbriata*, has been imported, as the current report goes, from Zanzibar in 1853. Mr. Richard, Director of the Botanical Garden at La Réunion, is the one who brought it to Paris." Lemaire's description is short and confusing, as generally is the case with Lemaire's establishments of the spe-

cies. Lemaire, however, in a seldom noticed statement (Ill. Hort., 1858, Misc., 63) adds the worthwhile note that *E. crispata* (to say, *E. Lemaireana* Boiss.) is marbled like *E. Hermentiana.*

The name *crispata* having been attributed to another species before 1857 (in particular, *E. crispata* Horn.), Boissier listed it in De Candolle Prodromus, XVII, 81, under the binomial *E. Lemaireana,* further describing it as "a triangular frutex with stem and branches deeply obstricted (choked); angles broad and very flat; spine two rather long; marblings conspicuous." Boissier does not fail to mention that the type is from Zanzibar, Eastern Africa, and compares it to *E. antiquirum* L.

The statement of Lemaire and Boissier, therefore, definitely exclude that the form is an hybrid which originated somehow in Paris, and the opinion of European growers quoted by Mr. Frick is wholly unfounded. I may mention in this connection that since *E. Lemaireana* was first observed and described in 1857 it is not to be thought that it can be an offspring of *E. grandicornis* Goeb., described in 1889, and of *E. pseudocactus* Berg., described even later, in 1907.

Pax lists *E. Lemaireana* Boiss. amongst the *Euphorbias,* sect. Diacanthium, of Africa (Engl. Bot. Jahrb. XXXIV, 1905, 73) saying:

"The species is not known to me, but the description of Lemaire and Boissier suggests as probable that it may be *E. Bussei, E. Reinhardtii* or *E. angularis.*"

N. E. Brown in Dyer's Flora of Tropical Africa, VI i, 584, lists amongst the synonyms to *E. angularis* Klotz. the following ones:

*E. crispata* Lem.

*E. Lemaireane* Boiss.

Klotzsch's description of *E. angularis* in Peters, Reise nach Mossambique, Bot. Abth. I, 92, is too long to be quoted here in detail. Nothing in it forbids accepting for valid the reduction of *E. Lemairiana* Boiss. to a synonym of it. In conclusion:

(a) Pax and N. E. Brown agree that *E. Lemaireana* is, or may be, a synonym to *E. angularis* Klotz.

(b) The species is a typical form of Western Africa, growing along the coast.

(c) It is not an hybrid. In fact, the experiments with *E. pseudocactus* and *E. grandicornis* of Mr. Frick have yielded seed 98% sterile and 2% returning the parent form *E. grandicornis* only. History, botany and experimentation are in full agreement on this point.

(d) Specimens which I have seen imported here from California are in substantial accord with the descriptions of Lemaire, Boissier, Klotzsch and N. E. Brown. It is unfortunate that we are not privileged in the East to dispose of the material and climate of California in order to check our conclusion without waiting for casual inflorescences to appear on our specimens. A plantlet of *E. Lemaireana* in the collection of Mr. Bullard is particularly fine and suggests in some details the habit of *E. Bussei* (for which see photograph in Engler, Pflanzenwelt Afr. I, i, 1910, 228, fig. 200). Every indication, however, suggests that *E. Lemaireana* cultivated in California is the species of Lemaire and Boissier, reduced by Pax tentatively, and by N. E. Brown definitely to *E. angularis* Klotz., a form closely related to a number of species that are of common occurrence from Zanzibar to Mosambique.

With thanks and kindest regards to you and your readers of the JOURNAL, I am

Yours very faithfully,

LEON CROIZAT.

## COCHINEAL

*By* G. A. FRICK

A member living in Ohio writes us to inquire as to the truth of a statement he heard of the Cochineal Bug* as a source of coloring matter for dyes. To date nothing has appeared in the JOURNAL or in any of the recent books published on cactus covering this subject of the Cochineal, so we are publishing this brief yet complete information taken from the Encyclopedia Britannica:

"The Cochineal is a natural dye-stuff used for the production of scarlet, crimson, orange and other tints, and for the preparation of lake and carmine. It consists of the females of *Dactylopius coccus,* an insect of the family *Coccidae* of the order Hemiptera, which feeds upon various species of Cactaceae, especially nopal, *Opuntia coccinellifera,* a native of Mexico and Peru. The dye was introduced into Europe from Mexico, where it had been used long before the entrance of the Spaniards. Cochineal has almost entirely been replaced by aniline dyes. The male of the cochineal insect is half the size of the female, and, unlike it, is devoid of nutritive apparatus; it has long white wings, and a body of a deep red colour, terminated by two diverging setae. The female is wingless, and has a dark-brown plano-convex body; it is found in the proportion of 150-200 to one of the male insect. The dead body of the mother insect serves as a protection for the eggs until they are hatched. Cochineal is now furnished not only by Mexico and Peru, but also by Algiers and southern Spain. It is collected thrice in the seven months of the season. The insects are carefully brushed from the branches of the cactus into bags, and are then killed by immersion in hot water, or by exposure to the sun, or the heat of an oven—much of the variety of appearance in the commercial article being caused by the mode of treatment. The dried insect has the form of irregular, fluted and concave grains, of which about 70,000 go to a pound. The best crop is the first of the season, which consists of the unimpregnated females; the later crops include an admixture of young insects and skins, which contain proportionally little coloring matter. Cochineal owes its tinctorial power to the presence of a substance termed cochinealin or carminic acid. Cochineal also contains a fat and wax; cochineal wax or coccerin is extracted by using benzine; the fat is a glyceryl myristate."

It is claimed that the Cochineal will attack

*To combat this pest the author washes off the webs with a garden hose. Once the bug is dislodged it quickly dies.

no other cactus than the Nopal, and Opuntia; this is not the case as I have seen many plants of *Cochemia poselgeri* in Lower California, Mexico, that were infested. The photo presented herewith was taken from an old colored print made 135 years ago and presented to the Cactus Society Library by Mr. Irving B. Levi of Scarsdale, New York.

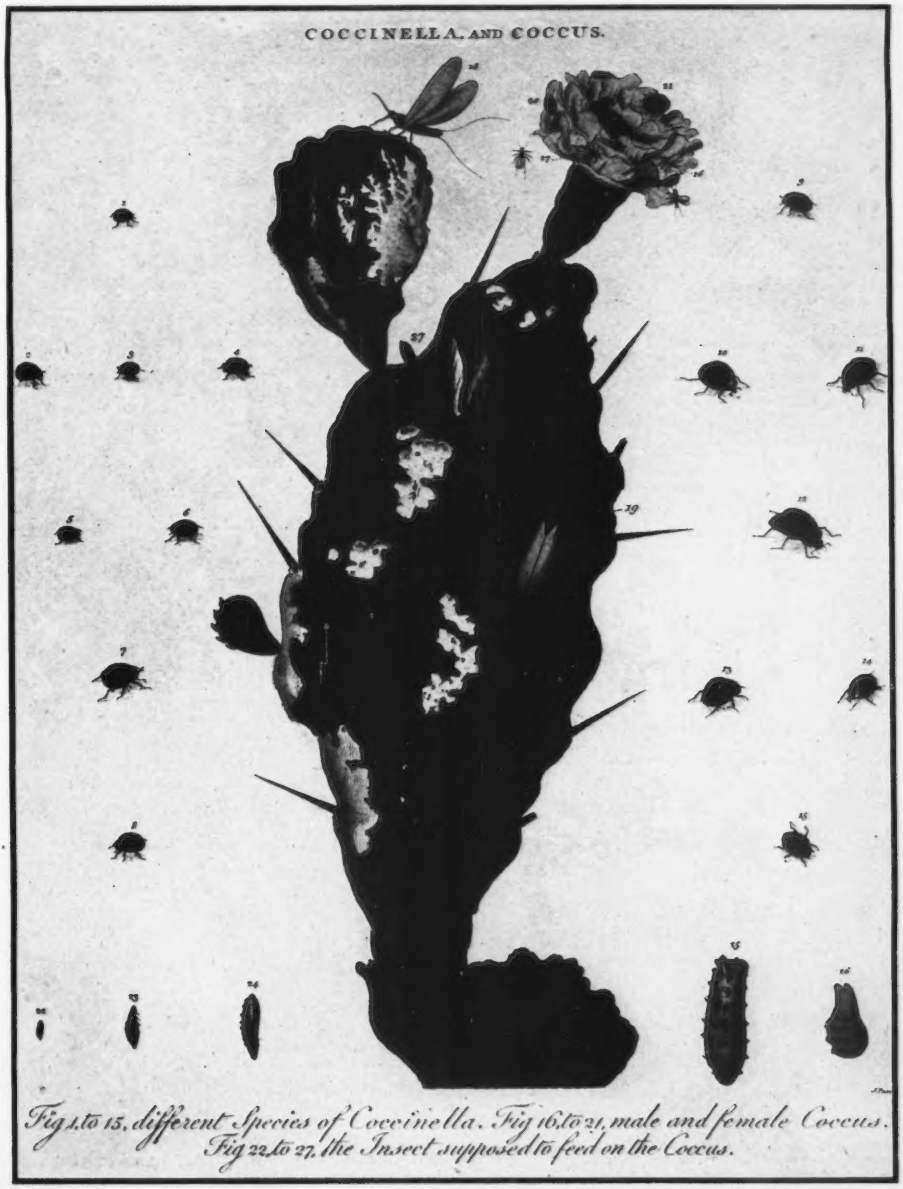


*Fig 1. to 15. different Species of Coccinella. Fig 16. to 21. male and female Coccus. Fig 22. to 27. the Insect supposed to feed on the Coccus.*

London, Published as the Act directs. No. 27, 1803 by J. Wilkes

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